

MPL /P-II/Expansion EC Compliance/I-2023-24

29th December 2023

To
Additional Principal Chief Conservator of Forests(C),
Ministry of Environment, Forests and Climate Change,
Integrated Regional Office - Chennai,
1st Floor, Additional Office Block,
Shastri Bhavan, Haddows Road,
Nungambakkam, Chennai-600006.

MPL-PLANT-II

Dear Sir,

Sub: Compliance Status of the Conditions Stipulated in the Environmental Clearance
(Period - April 2023 to September-2023)

Ref: - 1. EC Identification No. EC22A021TN168846
2. File No. J-11011/156/2008-IA-II(I) dated 06-10-2022

As per requirement, Environmental Compliance Report for the period April 2023 to September 2023 for the Expansion of Propylene Glycol plant by 50000 MTPA at Manali Petrochemicals Limited, Plant-II is attached for your reference and records.

Hope we have submitted the details as per requirement and should you require any further information, we are ready to furnish.

Thanking You,

Yours Faithfully,

For MANALI PETROCHEMICALS LIMITED



R. CHANDRASEKAR
Whole Time Director
occupier@manalipetro.com



Factories :

Plant - 1 : Ponneri High Road, Manali, Chennai - 600 068

Plant - 2 : Sathangadu Village, Manali, Chennai - 600 068

Phone : 044 - 2594 1025 Fax : 044 - 2594 1199



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Dear Sir,

Sub: - Compliance Status of the conditions stipulated in the Environmental Clearance (**Period - April 2023 to September-2023**)

Ref: - 1. EC Identification No. EC22A021TN168846
2. File No. J-11011/156/2008-IA-II(I) dated 06-10-2022

Manali Petrochemicals Limited – Plant – II – PG expansion EC Compliance Report

| Compliance Statement of EC conditions | | |
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| A. | Specific Conditions | Compliance Status |
| (i) | The PP shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for Industry operations, of air pollution viz. PM ₁₀ , PM _{2.5} , NO ₂ , CO and SO ₂ etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of process emission, transportation, use of DG Set and use of any machinery in the impact zone. The ambient air quality shall also be monitored at prominent places as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the Industry. | Agreed to comply. As per the condition, actions have been initiated to procure 3 (three) Ambient Air Quality (AAQ) Monitoring Stations which will be installed in upwind (1 No.) and downwind (2 Nos.) direction based on the climatological data and emission aspects as stipulated in the condition. AAQ monitoring will also be carried out at prominent places within the site as per the site condition so as to ascertain the exposure characteristics at specific places. On receipt of the AAQ monitoring stations, the same will be installed and the data will be digitally displayed in front of the main gate of the industry. |
| (ii) | The PP shall ensure that effective fugitive emission control measures should be imposed in the process, transportation, packing etc. and wherever possible, the transportation of materials is through rail/conveyor belt. | Agreed to comply. The following effective fugitive emission control measures are already available in the existing unit. <ul style="list-style-type: none"> • Provision of double mechanical seals in all the hydrocarbon pumps. • All the raw material and product tanks are under Nitrogen blanketing. |

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| | | <ul style="list-style-type: none"> • Purge gas from the process is used in boiler as fuel and not flared. • TVOC emission detectors are provided in appropriate locations to monitor and control fugitive emission. In the existing unit, District Environment Laboratory (DEL)-Manali of TNPCB is carrying out the TVOC survey every year and the same will be continued after expansion. • Continuous AAQ monitoring station kept in place to monitor PM_{2.5}, PM₁₀ and online connected to TNPCB - CAC. • The Plant is operated through DCS and the same is monitored continuously. <p>Emission control measures will be ensured in the expansion facility also.</p> |
| (iii) | Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident. such as road, loading, unloading and transfer points. The fugitive dust emissions from all sources shall be regularly controlled by installation of required equipment's/ machineries and preventive maintenance. It shall be ensured that air pollution level conform to the standards prescribed by the MoEF&CC/Central Pollution Control Board. | <p>Agreed to comply.</p> <p>Regular water sprinkling is being carried out at roads, loading, unloading and transfer points as an effective safeguard measure in the existing unit and the same will be continued after expansion also.</p> |
| (iv) | The PP shall explore the possibility of use of best available technology for the plant if any and submit a report every year to IRO, MoEF&CC. In case of availability of such technology the PP shall take necessary steps for the implementation of the same including amending the EC. | <p>Agreed to comply.</p> <ul style="list-style-type: none"> • The technology selected for the expansion is the best available. • The plant will be operated through Distributed Digital Control System. • The plant will be fully automated. • The safety interlock will be operated using Programmable Logic Controller (PLC). • The energy utilization will be minimized using pinch technology and latest energy efficient drives. |
| (v) | The PP shall carry out assessment of the carrying capacity of transportation load on roads inside the industrial premises every year and based on the assessment report take necessary measured including widening of the roads. | <p>Agreed to comply.</p> <p>Sufficient road space is available within the site for the existing and expansion units. The width of Existing Road is 6 m which is adequate for transportation of loads for the existing and as well as the expansion requirements. However, as stipulated in the condition, the assessment of the carrying capacity of transportation load on</p> |



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| | | roads within the industrial premises will be carried out every year. Based on the assessment report, necessary measures will be taken, including widening of the roads if any. |
| (vi) | The PP shall prepare a detailed rainwater harvesting plan within a period of 6 months so that unit may become water positive. The study report shall be submitted to IRO, MoEF&CC and submit the quantity of rainwater harvested to before IRO, MoEF&CC before 1st July of every year for the rainwater harvested during the previous year. | Agreed to comply. It is proposed to harvest the rainwater from the roof top of respective buildings to a collection tank/reservoir which will be used within the plant. |
| (vii) | The PP shall ensure that dumping of waste, if any, is strictly as per designated locations approved by SPCBs/PCCs. | Agreed to comply. The municipal wastes generated is presently being disposed to corporation recycle yards and the same will be continued after expansion. The hazardous wastes generated viz. Spent Oil and ETP sludge are being disposed to TNPCB authorized recyclers and TSDF facility operated by TNWML, Gummidipoondi respectively in the existing unit and the same will be followed after expansion. There is no additional ETP sludge generation from the expansion unit. The combined quantity will be within the TNPCB approved quantity, as per the HWA issued under Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016 vide HW Authorization No. 22HFC28359666 valid up to 31.03.2026. |
| (viii) | The PP shall ensure regular auditing of the compliance of the EC conditions by a Third Party annually and the audited report needs to be submitted to IRO, MoEF&CC. | Agreed to comply. The existing EC conditions are already audited by the Third Party Annually. Similarly, as per the condition, the annual audit for the compliance of the EC conditions will be carried out by a Third Party and the audited report will be submitted to IRO, MoEF&CC. |
| (ix) | The PP shall ensure the use of cleaner fuel R-LNG with a stack height of 30 m for controlling the particulate emissions within the statutory limit of 115 mg/Nm ³ for the proposed 30 TPH boiler and submit a report within a year to IRO, MoEF&CC before 1 st July of every year for the activities carried out during the previous year. | Agreed to comply. Initiated action to use cleaner fuel R-LNG in the proposed 30 TPH boiler. Agreement has been executed with IOCL & laying of pipeline for supply of R-LNG is being carried out by IOCL. Once the R-LNG is available, it will be ensured that the same will be used in the proposed 30 TPH boiler attached with the existing stack of height 30 m and the particulate emissions will be controlled within the prescribed statutory limit of 115 mg/Nm ³ . |
| (x) | The budget earmarked for the Corporate Environment Responsibility (CER) is ₹ 0.9375 Crores which will be spent on need-based approach in consultation with the | Agreed to comply. The budget earmarked for the Corporate Environment Responsibility (CER) of |



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| | District Collector of Thiruvallur District. The budget earmarked for CER shall be kept in separate account and should be audited annually. The PP should annually submit the audited statement along with proof of activities viz. photographs (before & after with geo-location date & time), details of activities carried out, amount spent etc. to the IRO, MoEF&CC before 1st July of every year for the activities carried out during the previous year. | ₹ 0.9375 Crores will be spent on need-based approach in consultation with the District Collector. The budget earmarked for CER will be kept in separate account and the same will be audited annually. The audited statement along with proof of activities viz. photographs (before & after with geo-location date & time), details of activities carried out, amount spent etc. will be submitted to the IRO, MoEF&CC. |
| (xi) | The PP shall develop additional Greenbelt by planting 14215 number of trees considering 70% survival rate within a period of one year from the grant of EC. The saplings selected for the plantation should be of sufficient height, preferably 6-ft (about 2 m). In addition to this, the budget earmarked for the plantation shall be kept in separate account and should be audited annually. The PP should annually submit the audited statement along with proof of activities viz. photographs (before & after with geo-location date & time), details of the expert agency engaged, details of species planted, number of species planted, survival rate, density of plantation etc. to the Regional Office of MoEF&CC before 1 st July of every year for the activities carried out during the previous year. | Complied. <ul style="list-style-type: none"> • The additional Greenbelt development completed by planting 14215 number of trees in an area of 15 acres allotted by Thirunilai Panchayat, Cholavaram Union, Ponneri Taluk during Oct – 2023. Photos of before & after Green belt development with geo-location enclosed as Annexure – 1. • The saplings selected for plantation are of sufficient height, preferably 6-ft (about 2 m). • In addition to this, the budget earmarked for the plantation will be kept in separate account and the same will be audited annually. • The audited statement along with proof of activities viz. photographs (before & after with geo-location date & time), details of the expert agency engaged, details of species planted, number of species planted, survival rate, density of plantation etc. will be submitted to the Regional Office of MoEF&CC. |
| (xii) | A separate Environmental Management Cell (having qualified persons with Environmental Science/Environmental Engineering/specialization in the project area) equipped with full- fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions. The PP shall engage Plant Head-Head EHS- Assistant Manager- safety and Environment, Executives. In addition to this one safety & health officer as per the qualification given in Factories Act 1948 shall be engaged within a month of grant of EC. The PP should annually submit the audited statement of amount spent towards the engagement of qualified persons in EMC along with details of person engaged to the Regional Office of MoEF&CC before 1st July | Partially Complied. A separate Environmental Management Cell (EMC) (having qualified persons with Environmental Science/Environmental Engineering/Specialization in the project area) equipped with full- fledged laboratory facilities are already in place to carry out the Environmental Management and Monitoring functions. In the EMC, Plant Head- Head EHS- Manager- Safety and Environment, Executives are engaged. In addition to this, one safety & health officer as per the qualification given in Factories Act 1948 is engaged. The annual audited statement for the amount spent towards the engagement of qualified persons in EMC along with details of person engaged will be submitted to the Regional Office of MoEF&CC. |



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| | of every year for the activities carried out during the previous year. | |
| (xiii) | The company shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented. The budget proposed under EMP is ₹1411 Lakh (Capital cost) and ₹677 Lakh (Recurring cost) shall be kept in separate account and should be audited annually. The PP should submit the annual audited statement along with proof of implementation of activities proposed under EMP duly supported by photographs (before & after with geo-location date & time) and other document as applicable to the Regional Office of MoEF&CC before 1 st July of every year for the activities carried out during the previous year. | Agreed to comply. The company will comply with all the environmental protection measures and safeguards as proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management and risk mitigation measures relating to the project will be implemented. The budget proposed under EMP is ₹1411 Lakh (Capital cost) and ₹677 Lakh (Recurring cost) will be kept in separate account and the same will be audited annually. The annual audited statement along with proof of implementation of activities proposed under EMP duly supported by photographs (before & after with geo-location date & time) and other document as applicable will be submitted to the Regional Office of MoEF&CC. |
| (xiv) | The total water requirement will be 3247 KLD for existing facility and additional requirement of 810 KLD for the proposed expansion will be met from Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB). The PP should ensure that water supply should not be above the permissible limit as mentioned in the letter and fresh water shall be withdrawal only after obtaining valid agreement from Concerned Authority. The PP should submit the details of utilization to the Integrated Regional Office (IRO), MoEF&CC before 1 st July of every year for the activities carried out during the previous year. | Agreed to comply. The water supplied will not be above the permissible limit as mentioned in the letter and fresh water will be withdrawn only after obtaining valid agreement from Concerned Authority. The details of utilization will be submitted to the Integrated Regional Office (IRO), MoEF&CC. |
| (xv) | No banned chemicals shall be manufactured by the PP. No banned raw materials shall be used in the unit. The PP shall adhere to the notifications/guidelines of the Government in this regard. | Complied. No banned chemicals are being manufactured in the unit and will not be manufactured in the Expansion facility also. No banned raw materials are being used in the unit and will not be used in the Expansion facility also. The notifications/guidelines of the Government issued in this regard shall be adhered. |
| (xvi) | The PP shall utilize modern technologies for capturing of carbon emitted and shall also develop carbon sink/carbon sequestration resources capable of capturing more than | Agreed to comply. It is proposed to use R-LNG as fuel in boilers which will act as carbon sequestration resource. |



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| | emitted. The implementation report shall be submitted to the IRO, MoEF&CC in this regard. | The carbon emitted due to usage of LSFO will be reduced by implementation of clean fuel usage in boilers. Agreement has been executed with IOCL & laying of pipeline for supply of R-LNG is being carried out by IOCL. Also, the green belt already developed and proposed green belt will also act as a resource for carbon sequestration. |
| (xvii) | The PP shall comply with the environment norms for Pharmaceuticals/Bulk Drugs Industry as notified by the Ministry of Environment, Forest and Climate Change, vide GSR 541(E), dated 06.08.2021 under the provisions of the Environment (Protection) Rules, 1986. | Agreed to comply. The environment norms for Pharmaceuticals/Bulk Drugs Industry as notified by the Ministry of Environment, Forest and Climate Change, vide GSR 541(E), dated 06.08.2021 under the provisions of the Environment (Protection) Rules, 1986 will be complied. |
| (xviii) | All necessary precautions shall be taken to avoid accidents and action plan shall be implemented for avoiding accidents. The PP shall implement the onsite/offsite emergency plan/mock drill etc. and mitigation measures as prescribed under the rules and guidelines issued in the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989, as amended time to time, and the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996. | Agreed to comply. As per Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) rules, Onsite emergency plan for the existing facility is already in place and the same was submitted to O/o. DISH. Similarly, the Onsite emergency plan with mitigation measures has been prepared for the proposed project and the same will be submitted to O/o. DISH after implementation of the project. As per MSIHC rules, the Offsite emergency plan needs to be prepared and kept in place by the concerned Govt. Authority as identified in Column 2 of Schedule 5. Actions have been initiated to prepare Offsite Emergency plan through Manali Industrial Association. The required assistance will be provided by us in preparing the Offsite emergency plan and in mitigating the Offsite emergency if any. The details of Offsite Emergency plan is also addressed in the Onsite Emergency plan for the proposed project. |
| (xix) | The volatile organic compounds (VOCs)/Fugitive emissions shall be controlled at 99.97 % with effective chillers/modern technology. Regular monitoring of VOCs shall be carried out. | Agreed to comply. The following effective fugitive emission control measures are already available in the existing unit. <ul style="list-style-type: none"> • Provision of double mechanical seals in all the hydrocarbon pumps. • All the raw material and product tanks are under Nitrogen blanketing. • TVOC emission detectors are provided in appropriate locations to monitor and control fugitive emission. In the existing unit, District Environment Laboratory (DEL)-Manali of TNPCB is carrying out the TVOC survey every |



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| | | <p>year and the same will be continued after expansion.</p> <ul style="list-style-type: none"> • Continuous AAQ monitoring station kept in place to monitor PM2.5, PM10 and connected to TNPCB - CAC. • Plant-II is operated through DCS and the same is monitored continuously. • The entire operation carried out in a closed circuit with secondary and tertiary condensing technology with chilled water supply. <p>Emission control measures will be ensured in expansion facility also and the fugitive emissions will be controlled at 99.97%. Regular monitoring of VOCs will be carried out.</p> |
| (xx) | The PP shall explore possibilities for recycling and reusing of treated water in the unit to reduce the freshwater demand and waste disposal. | <p>Partially complied.</p> <ul style="list-style-type: none"> • Sewage Treatment Plant (STP) of capacity 20 KLD is commissioned to treat the generated sewage. The treated water from the STP being reused for green belt so as to reduce the freshwater demand and waste disposal. Photograph of recently commissioned STP is attached as Annexure – 2. • It is planned to install a RO plant of capacity 350 KLD to treat the effluents generated from the utility units viz. Cooling Tower, DM unit and Boiler. The RO permeate will be reused for industrial usage so as to reduce the freshwater demand and waste disposal. The RO rejects will be sent to ETP for further treatment. |
| (xxi) | As already committed by the PP, Zero Liquid Discharge shall be ensured based on the outcome of study conducted by NEERI. Effluent of 2556 KLD will be treated through Effluent Treatment Plant and disposed to sea after meeting the prescribed standards. | <p>Agreed to comply.</p> <p>Letter of intent was issued to NEERI during May 2023 to conduct ZLD feasibility study. NEERI visited our site during Aug '23 and copy of site visit report is attached as Annexure - 3. CSIR-NEERI team had informed vide mail dated 06-11-2023 that, they will be starting field monitoring post this monsoon period, tentatively by January 2024. Awaiting further course of action from them. Based on the outcome of the study, we commit to implement the ZLD in the unit, after technical evaluation of the proposal.</p> |
| (xxii) | Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB servers. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the | <p>Partially complied.</p> <p>Continuous online (24 x 7) monitoring system is already in place for the Boiler stack & effluent and the data is being transmitted to the CPCB and SPCB servers. There is no additional stack for the expansion unit.</p> |



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| | channel/drain carrying effluent within the premises. | Flow meters have been already installed in the effluent pipeline. A web camera with night vision capability will be installed within the premises. |
| (xxiii) | The storage of toxic/hazardous raw material shall be bare minimum with respect to quantity and inventory. Quantity and days of storage shall be submitted to the Regional Office of Ministry and SPCB along with the compliance report. | Agreed to comply. The storage of toxic/hazardous raw material will be bare minimum with respect to quantity and inventory. The details regarding Quantity and days of storage will be submitted to the Regional Office of Ministry and SPCB along with the compliance report. |
| (xxiv) | The occupational health center for surveillance of the worker's health shall be set up. The health data shall be used in deploying the duties of the workers. All workers & employees shall be provided with required safety kits/mask for personal protection. | Being Complied. The occupational health center for surveillance of the worker's health is already in place. All workers & employees are provided with required safety kits/mask for personal protection in the existing unit and the same will be continued for the expansion unit. The health data are being used in deploying the duties of the workers in the existing unit and the same will be continued for the expansion unit. |
| (xxv) | Training shall be imparted to all employees on safety and health aspects for handling chemicals. Safety and visual reality training shall be provided to employees. Action plan for mitigation measures shall be properly implemented based on the safety and risk assessment studies. | Agreed to comply. Training is already imparted to all employees on safety and health aspects for handling chemicals. Safety and visual reality training is also provided to employees. Action plan for mitigation measures is properly implemented based on the safety and risk assessment studies for the existing unit. The same will be made available in the Expansion facility also. |
| (xxvi) | The unit shall make the arrangement for the protection of possible fire hazards during manufacturing process in material handling. Fire-fighting system shall be as per the norms. | Agreed to comply. MPL has a well laid individual Fire Water pumping system with Jockey pumps, Main motor driven pumps and Diesel engine driven pumps. Fire hydrant header runs throughout the plant, covering the entire MPL plant with sufficient number of hydrants and monitors as per the Tamil Nadu Factories Rules requirements. MPL has its own 1 No. of Fire Tender having water, foam and DCP extinguishing facility. Arrangement for the protection of possible fire hazards during manufacturing process in material handling is already in place. The same will be extended for the Expansion also. |



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| (xxvii) | <p>The solvent management shall be carried out as follows: (a) Reactor shall be connected to chilled brine condenser system. (b) Reactor and solvent handling pump shall have mechanical seals to prevent leakages. (c) Solvents shall be stored in a separate space specified with all safety measures. (d) Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done. (e) Entire plant shall be flame proof. The solvent storage tanks shall be provided with breather valve to prevent losses. (f) All the solvent storage tanks shall be connected with vent condensers with chilled brine circulation.</p> | <p>Agreed to comply.</p> <p>As per the stipulated condition, appropriate solvent management system will be carried out as applicable for the solvent handling and solvent storage tanks.</p> <p>In the proposed expansion, the entire operation carried out in a closed circuit with secondary and tertiary condensing technology with chilled water supply so as to ensure nil emission of solvents from the solvent handling and storage tanks.</p> |
| (xxviii) | <p>The storm water from the roof top shall be channelized through pipes to the storage tank constructed for harvesting of rainwater in the premises and harvested water shall be used for various industrial processes in the unit. No recharge shall be permitted within the premises. Process effluent/ any wastewater shall not be allowed to mix with storm water.</p> | <p>Agreed to comply.</p> <p>The storm water from the roof top will be channelized through pipes to the storage tank constructed for harvesting of rainwater in the premises. The harvested water will be used for various industrial processes in the unit. No recharge will be done within the premises. Process effluent/ any wastewater will not be allowed to mix with storm water.</p> |
| (xxix) | <p>The PP shall undertake waste minimization measures as below (a) Metering and control of quantities of active ingredients to minimize waste; (b) Reuse of by-products from the process as raw materials or as raw material substitutes in other processes. (c) Use of automated filling to minimize spillage. (d) Use of Close Feed system into batch reactors. (e) Venting equipment through vapor recovery system. (f) Use of high pressure-hoses for equipment cleaning to reduce wastewater generation.</p> | <p>Agreed to comply.</p> <p>The company has undertaken following Waste Minimization measures in the existing unit:</p> <ul style="list-style-type: none"> • Mass flow meters installed to measure the quantity of active ingredients. • Re-use of by products as raw material substitutes in other processes is done. • Use of automated filling machine in place to minimize spillage. • Use of "Closed Feed" system into batch reactors and venting equipment through vapor recovery system • Use of high pressure-hoses for equipment cleaning to reduce wastewater generation. <p>The same scheme will be implemented in the proposed expansion.</p> |
| (xxx) | <p>The raw material Propylene and the proposed boiler fuel R-LNG shall be transferred through pipeline from CPCL refinery and IOCL LNG terminal, Ennore respectively. Further, the PP shall explore the transportation of all other materials by rail/conveyor belt, wherever feasible and submit a report to IRO, MoEF&CC within 6 months.</p> | <p>Agreed to comply.</p> <p>The raw material Propylene is being transferred through pipeline from CPCL refinery in the existing unit. The proposed boiler fuel R-LNG will be transferred through pipeline from IOCL LNG terminal, Ennore. Further exploration will be made to check the feasibility of transfer of all other materials by rail/conveyor belt.</p> |



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| (xxxii) | In addition to the 40% green belt, the PP shall develop greenbelt outside the project premises such as avenue plantation, plantation in vacant areas, social forestry, etc. for the benefit of local environment and people. | Agreed to comply. In addition to the 40% green belt, green belt will be developed outside the project premises in the form of avenue plantation for the benefit of local environment and people. |
| (xxxii) | The sewage shall be treated in the proposed STP and the treated water shall be reused for the green belt. | Complied Sewage Treatment Plant (STP) of capacity 20 KLD is commissioned to treat the generated sewage. The treated water from the STP being reused for green belt. |
| B. | General Conditions | Compliance Status |
| (i) | No further expansion or modifications in the plant, other than mentioned in the EIA Notification, 2006 and its amendments, shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change/SEIAA, as applicable. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry/SEIAA, as applicable, to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any. | Agreed to comply. No further expansion or modification in the plant other than mentioned in the EIA will be carried out without prior approval from The Ministry of Environment, Forests and Climate Change/SEIAA as applicable. A fresh reference will be made by the unit to the Ministry/SEIAA to assess the adequacy of conditions imposed and to add additional environmental protection measures required in case of any deviations or alterations in the project proposal. |
| (ii) | The Project proponent shall strictly comply with the rules and guidelines issued under the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989, as amended time to time, the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996, and Hazardous and Other Wastes (Management and Trans-Boundary Movement) Rules, 2016 and other rules notified under various Acts. | Agreed to comply. We undertake to comply with the rules and guidelines issued under the Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989, as amended time to time, the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996, and Hazardous and Other Wastes (Management and Trans-Boundary Movement) Rules, 2016 and other rules notified under various Acts for the expansion unit. |
| (iii) | The energy source for lighting purpose shall be preferably LED based, or advanced having preference in energy conservation and environment betterment. | Agreed to comply. The lightings have already been converted to LED based in the existing unit. In the expansion facility also, the energy source for lighting purpose will be preferably LED based, or advanced having preference in energy conservation will be used. |
| (iv) | The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control | Agreed to comply. |



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| | measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (night time). | Noise levels in and around the plant area are within the prescribed standards of 75 dBA (daytime) and 70 dBA (night-time) in the existing unit. Ambient noise level is being monitored through TNPCB District Environment Laboratory (DEL) – Manali once in a year. In the expansion facility also, the overall noise levels in and around the plant area will be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. Ambient Noise level survey will be carried out every month by internal lab and once in a year by District Environmental Laboratory, TNPCB. The ambient noise levels will conform to the standards prescribed under the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (night-time). |
| (v) | The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. The activities shall be undertaken by involving local villages and administration. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment. | Agreed to comply. The company has already taken up various measures to improve the socio-economic conditions of the surrounding area. The company will continue to undertake all relevant measures for improving the socio-economic conditions of the surrounding area and eco-developmental measures including community welfare measures in the project area through Corporate Social Responsibility (CSR) activities by involving local villages and administration. |
| (vi) | The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/pollution control measures shall not be diverted for any other purpose. | Agreed to comply. The company will earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/pollution control measures will not be diverted for any other purpose. |
| (vii) | A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zilla Parishad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. | Complied The points of representation received by the MoEF&CC, New Delhi during processing of the proposal was shared to us vide mail dated 04-07-2022. The reply for respective points of representation with relevant justification were submitted by us to the Ministry on 07-07-2022. |



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| | | The points were evaluated during the 35 th Expert Appraisal Committee (EAC) meeting of Industry-3 sector held on 28-07-2022. In the Minutes of 35 th EAC meeting issued on 11-08-2022, it was mentioned that the relevant justification given by us for the respective points of representation were found to be satisfactory at Page No. 16. Environmental Clearance was granted by the MoEF&CC, New Delhi on 06-10-2022. The copy of clearance letter is available at the Website of the Ministry (https://parivesh.nic.in/) |
| (viii) | The project proponent shall also upload/submit six monthly reports on Parivesh Portal on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data to the respective Integrated Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental Clearance and six-monthly compliance status report shall be posted on the website of the company. | Agreed to comply. We undertake to upload/ submit six monthly reports on Parivesh Portal on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data to the respective Integrated Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental Clearance and six-monthly compliance status report will be posted on the website of the company. |
| (ix) | The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Integrated Regional Office of MoEF&CC by e-mail. | Agreed to comply. The environmental statement for each financial year ending 31st March in Form-V as is mandated will be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently. Copy of the same will be uploaded on the website of the company along with the status of compliance of environmental clearance conditions and will also be sent to the respective Integrated Regional Office of MoEF&CC by e-mail. |
| (x) | The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry and at https://parivesh.nic.in/ . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be | Complied. The environmental clearance was granted by the MoEF&CC, New Delhi on 06-10-2022. We have informed about the grant of environmental clearance by the Ministry through advertisement in two local newspapers which are widely circulated in the region viz. The New Indian Express (in English) and The Hindu Tamil (in Tamil, vernacular language of the locality), both dated 08-10-2022, which is within seven days from the date of issue of the clearance letter and the same was submitted with previous compliance report. |



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| | forwarded to the concerned Regional Office of the Ministry. | The details were forwarded to the Integrated Regional Office (IRO), Chennai vide letter dated 12-10-2022. |
| (xi) | The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project. | Agreed to comply. The date of financial closure and final approval of the project and the date of start of the project will be informed to the Regional Office as well as the Ministry. |
| (xii) | This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project. | Agreed to comply. Noted. We agree to comply with the same. |

Hope, we have submitted the details required by you and if you require any further information we are ready to furnish the same.

Thanking you,
Yours faithfully,

For MANALI PETROCHEMICALS LIMITED

R. Chandrasekar

R. CHANDRASEKAR
Whole Time Director

occupier@manalipetro.com

Encl: As above.

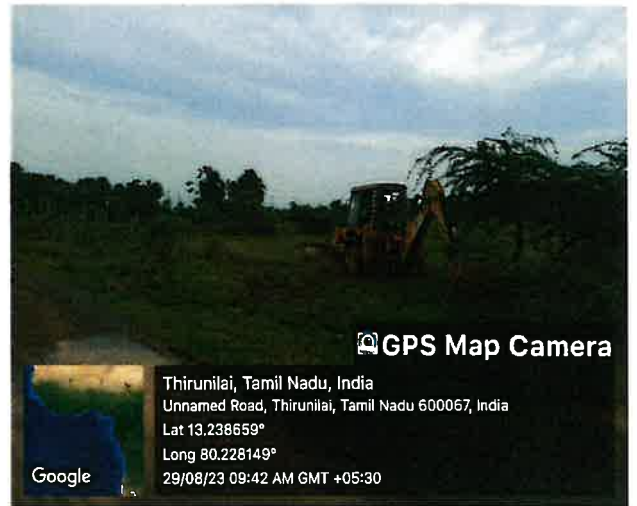
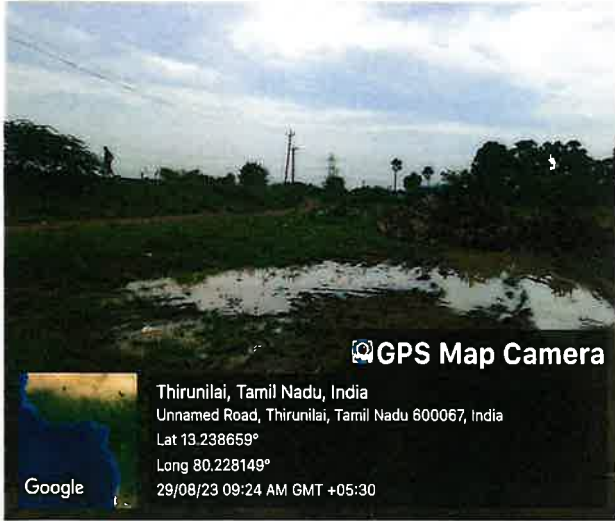
Copy to:-

- 1) The Member secretary, 76, Mount Road, Guindy, Chennai – 600 032
- 2) The Joint Chief Environmental Engineer (M), Arumbakkam, Chennai – 600 106

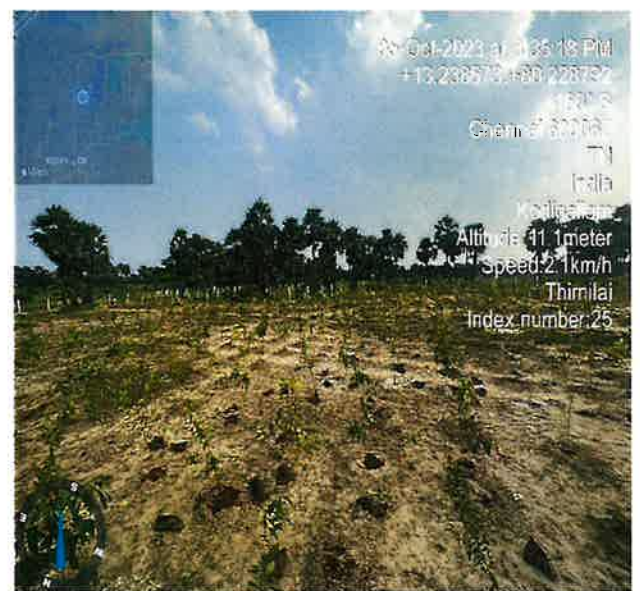
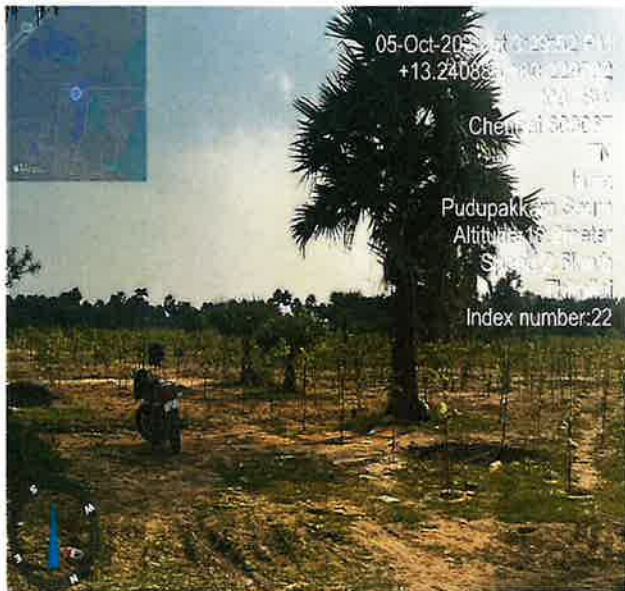
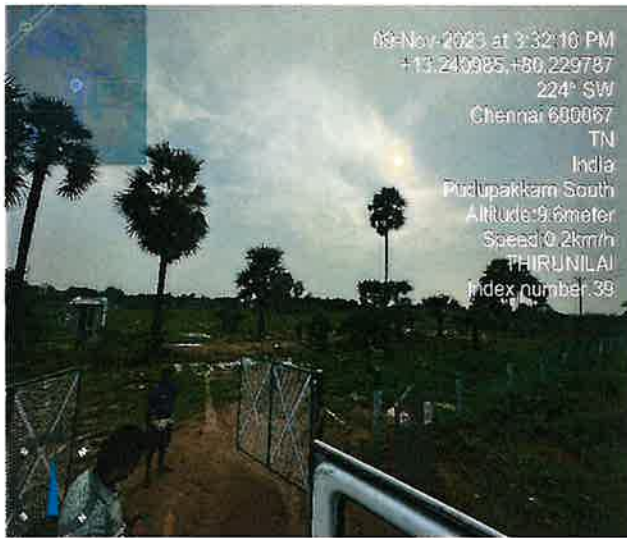


G.R. Jeyaraj

Photographs of Land allotted by for Green Belt Development Thirunilai Panchayat, Cholavaram Union, Ponneri Taluk (Taken BEFORE Green belt development) ANNEXURE - 1



Photographs taken AFTER Green belt development



ANNEXURE - 2



Photograph of STP commissioned at Plant - II



Site Visit Report

**Feasibility Studies for Implementation of ZLD Concept
for Higher Utilization of Treated Wastewater at Manali
Petrochemicals Limited (Plant- I and Plant-II) &
Tamilnadu Petroproducts Limited**

Sponsor



**CSIR-National Environmental Engineering Research Institute,
Nehru Marg, Nagpur - 440020**

August 2023



1. Introduction and Background

Manali Petrochemicals Limited (MPL) and their sister concern Tamilnadu Petroproducts Limited (TPL), located in Manali, Chennai, Tamil Nadu, are a chemical petrochemical industry that manufactures an array of chemical compounds like Propylene Oxide (PO), propylene glycols, polyols, and many customised chemical formulations for different applications in other sectors such as home appliances, automotive, bedding, food & fragrances, furniture, footwear, paints and coatings, and pharmaceuticals etc. PO is traditionally produced by two routes, namely the chlorohydrin and Halcon (hydroperoxide) processes. MPL & TPL manufacture Propylene oxide through the chlorohydrin route.

2. Site Visit Details

2.1. Team

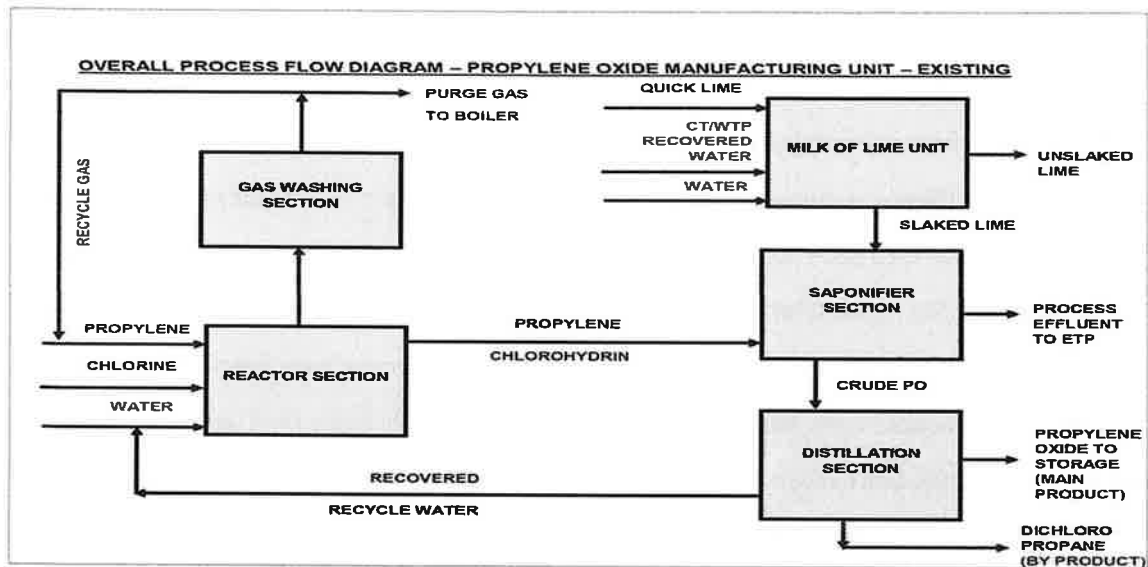
To understand and analyse the current situation, a team of NEERI personnel (Dr. S. Bhuvanesh from CSIR-NEERI, Nagpur and Mrs. D. Catherine from CSIR-NEERI Chennai Zonal Office) visited Chennai on the 3rd of August 2023. Site visit and visual analysis of the Effluent Treatment Plant (ETP) was carried out. A detailed discussion was carried out with the MPL and TPL staff (Mr. G.R. Sridhar, Mr. T. Thangasagaran, Mr. A.R. Swamydurai, Mr. S. Baskaran, Mr. K. Sivaramakrishnan, Mr. R. Mohanasundaram, Mr. C. Saravanan, Mr. R. Raghuraman and Mr. R. Karthik from MPL and Mr. S. Venkatraman, Mr. S.C. Kumar and Mr. A. Arivazhagan from TPL) in the meeting hall of MPL.

2.2. Description of the Process Plant

MPL and TPL produce PO using the chlorohydrin process. In the chlorohydrin process, chlorine is injected at the bottom of a reactor full of water to produce hypochlorous acid that reacts with injected propylene vapour and is converted to propylene chlorohydrins (PCH). Dichloropropane (DCP) is also produced in small quantities as a by-product.

PCH flows into a saponifier along with the milk of lime. The crude PO and DCP present in the reactor are routed to the distillation column, where PO is separated as a top product.

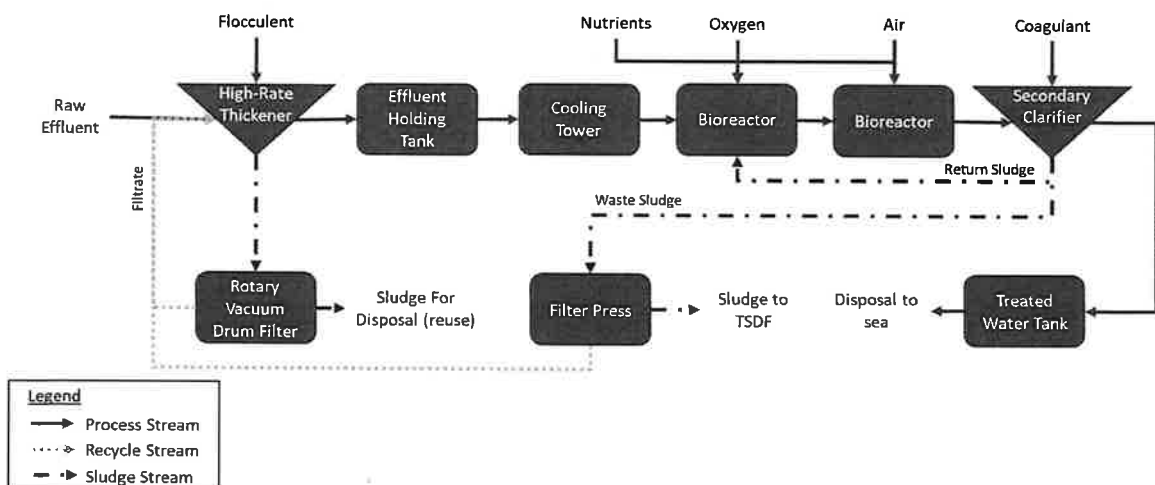
The plant's wastewater is generated from the saponifier section of the process.



Process flow of PO manufacturing at Plants of MPL & TPL

2.3. Description of the ETP

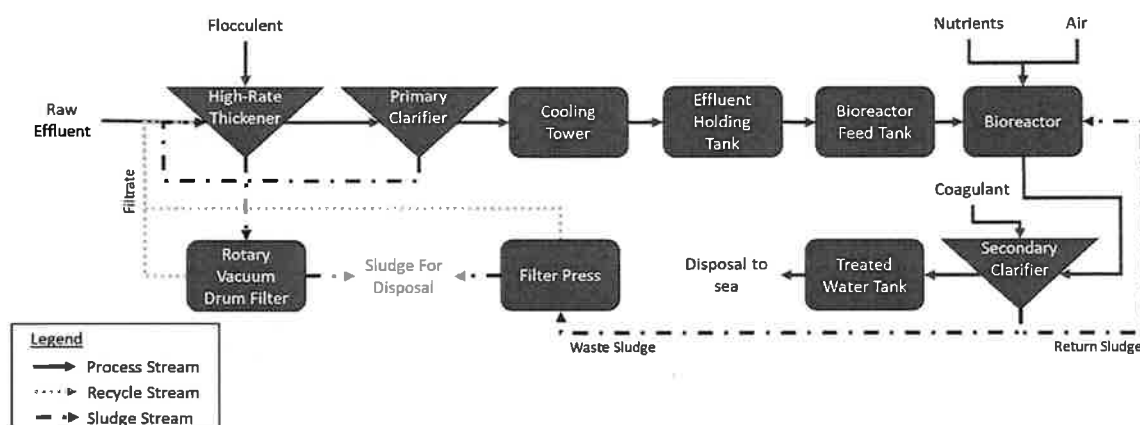
The main process units of the ETPs are a high-rate thickener followed by an activated sludge process. The generated wastewater contains 4 to 5% dissolved solids and a COD concentration of 1500 to 2000 mg/L, the main pollutants.



PFD of the ETP at MPL Plant 1

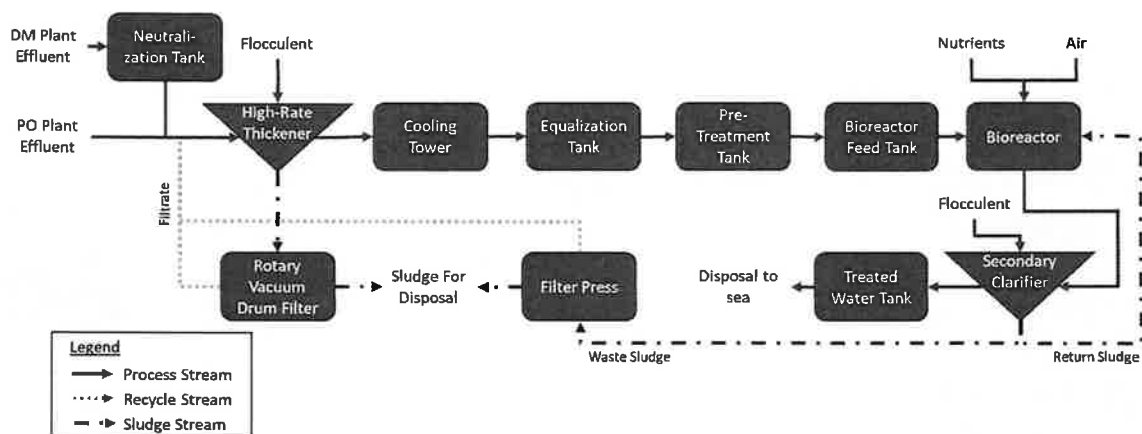
The Saponifier bottom wastewater is pumped to a High-Rate Thickener (HRT), where all the unreacted inert in the milk of lime are settled and sent to a Rotary Vacuum Drum Filter (RVDF). In the rotary filter, the separated solid is transferred to a disposal area for solar drying and

further transportation for landfill or use to manufacture low-cost lime bricks. Flocculent is added at HRT for faster settling of suspended solids. The filtrate from RVDF is sent back to HRT. HRT overflow is sent by gravity flow to an effluent holding tank. From the effluent holding tank, effluent is pumped to the cooling tower, where the effluent temperature is reduced from 65 °C to 35 – 40 °C (min.). The outlet of the cooling tower sump is pumped to the bioreactor. The bioreactor is split into two lines with three bioreactors in series in each line. The first bioreactor is supplied with pure oxygen over and above the regular air supply. The regular air supply uses blowers and diffused air systems using OHR aerators. Nutrients are provided to the bioreactors based on the requirements. The outlet of the bioreactor flows to the secondary clarifier, where the sludge is either discarded through a filter press or recycled back to the bioreactor to maintain MLSS. The clarified water from the secondary clarifier is sent to the treated effluent tank, from where the water is discharged to the sea.



PFD of the ETP at MPL Plant 2

The process units in the ETP of MPL plant 2 are similar to plant 1. The differences are that pure oxygen is not used for aeration, and jet aerators are used for aeration instead of diffused air, as in ETP of plant 1. In the TPL plant ETP, the wastewater from the DM plant is sent along with the process effluent to the ETP. However, the TPL plant ETP process units are similar to the MPL plants. The treatment and discharge capacity of the ETPs of the MPL plant 1, plant 2 and TPL plant is 2.4 MLD, 2.56 MLD and 1.81 MLD, respectively.



PFD of the ETP at TPL Plant

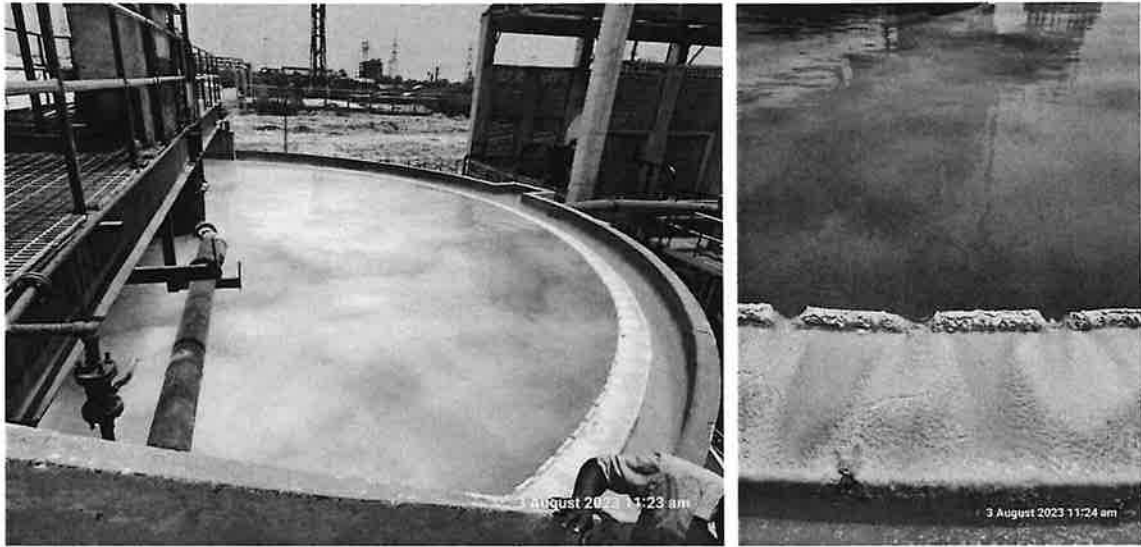
2.4. Status of ETP

Based on the overall observations, the status of the ETP has been reported here. However, this report is an interim site visit report. The comments can be verified only after receiving the final lab analysis. Also, careful design and process parameters analysis must be studied to provide the final comments.

The following is the gist of the current status of ETPs:

1. The reactors are periodically fed with external biomass regularly.
2. An external consultant who provides external biomass also guides the ETPs' operation.
3. The sludge in the aeration tank of the ETP of MPL plants is whitish brown in colour.
4. The sludge in the ETP of the TPL plant is blackish brown in colour.
5. A quick settling observation showed faster-settling characteristics for the sludge in the ETPs of the MPL plants.
6. On the contrary, the ETP of the TPL plant showed slower settling characteristics. SVI and MLVSS data need to be analysed to understand the cause of this difference in treating the same kind of wastewater.
7. Flocculant dosing is used in the ETPs' secondary clarifiers, which goes back into the bioreactor along with the return sludge.
8. Sedimentation tanks of ETP of TPL plants do not have a proper weir distribution either due to the precipitation of calcium or damage.

Some of the current operation status images are shown in the following figures:



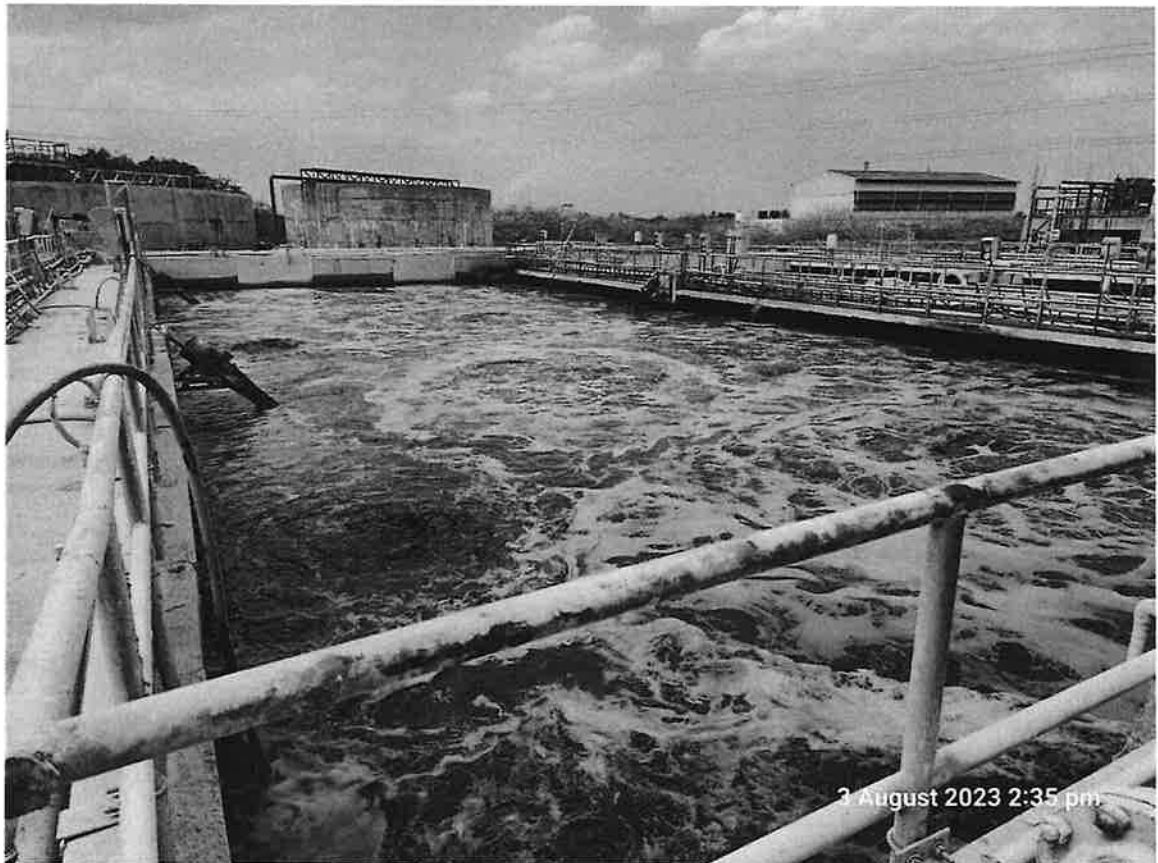
High rate thickener of ETP of MPL plant 1



Rotary vacuum drum filter in operation



Whitish brown sludge in the aeration tank of ETP of MPL plant 1 (left) and plant 2 (right)



Blackish brown sludge in the aeration tank of ETP of TPL plant



Treated water from ETP of MPL plant 2

3. Future Work

As part of future work, samples will be collected for analysis. The existing biological treatment system will be assessed with respect to the process parameters and aeration. Performance assessment of existing ETPs will be carried out to know the current status and identification of problems, if any. Options for complete or partial recycling/ reuse of treated wastewater will be identified. All other objectives shall be completed as per the scope of work in the original proposal.